

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An information retrieval apparatus comprising:  
a mapping processor operable to receive data representative of a map of information items from a set of information items identified in a search using a self organizing map, the map of information items providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array, and to process the map data to form a hierarchical clustering of information items providing a first clustering level of information items and at least one other clustering level of information items for clusters of information items within the first level clusters; and  
a display processor operable in combination with a graphical user interface to display a representation of at least some of the positions of the array which correspond to identified information items as an n-dimensional display of display points within a display area of a graphical display, the display area corresponding to at least a portion of the array,  
wherein, when viewing a first cluster in one of the hierarchical levels within the display area of the graphical display, the display processor is operable to generate data which is displayed as a direction indicating symbol on the graphical user interface providing a user with a relative direction within the n-dimensional display of the location of a second cluster within a same hierarchical level of the n-dimensional display as the first cluster, the second cluster being located outside the display area, and the direction indicating symbol is configured to navigate to the second cluster within the n-dimensional display, and

the graphical user interface is operable to display the direction indicating symbol indicating the relative direction of the second cluster within the display area of the graphical display with respect to a position of the first cluster in the display area, and the data representing the number of information items within the cluster is displayable with respect to the direction indicating symbol.

Claim 2 (Previously Presented): An apparatus as claimed in Claim 1, wherein the information items include a plurality of characterizing information features, the characterizing information features of each information item being used to form a feature vector for each information item, the feature vector being used to form the map data by mapping the information item onto a position within the array.

Claim 3 (Previously Presented): An apparatus as claimed in Claim 1, wherein the mapping processor is operable to provide the first clustering level of information items with a characterizing information feature associated with each of the first level clusters of information items and to provide a characterizing information feature for the clusters of information items within the first level clusters at the other hierarchical level.

Claim 4 (Previously Presented): An apparatus as claimed in Claim 1, wherein the characterizing information feature associated with each first level cluster and the other characterizing information feature associated with each cluster within the other clustering level of information items are formed front a most common characterizing information feature present in the information items associated with each cluster.

Claim 5 (Original): An apparatus as claimed in Claim 1, wherein the clusters of information items within one of the lower level clusters are associated with one another, whereas the other clusters of the first level are additional clusters of information items with respect to the information items within the lower level cluster.

Claim 6 (Previously Presented): An apparatus as claimed in Claim 3, wherein the characterizing information item associated with each cluster is the most common word of the textual information associated with each of the information items within each cluster.

Claim 7 (Previously Presented): An apparatus as claimed in Claim 1, wherein the information items comprise textual information, the characterizing information features being words, and the feature vector for an information item is representative of a set of frequencies of occurrence, within that information item, of each of a group of words.

Claim 8 (Previously Presented): An apparatus as claimed in Claim 7, wherein the information items include textual information, the characterizing information features being words, the positions within the array being mapped by mutual similarity of at least a part of the textual information.

Claim 9 (Original): An apparatus as claimed in Claim 7, wherein the information items are pre-processed for mapping by excluding words occurring within the textual information having more than a threshold frequency amongst the set of information items.

Claim 10 (Original): An apparatus as claimed in Claim 7, wherein the information items are pre-processed for mapping by excluding words occurring within the textual information having less than a threshold frequency amongst the set of information items.

Claim 11 (Canceled).

Claim 12 (Previously Presented): An apparatus as claimed in Claim 1, wherein the display area includes at least two areas, one area providing an n-dimensional representation of the first hierarchical level of clusters and the other area providing an n-dimensional representation of the other hierarchical level of clusters, where n is an integer.

Claim 13 (Previously Presented): An apparatus as claimed in Claim 1, comprising search processor for carrying out a word-related search of the information items; the search processor and the graphical user interface being arranged to cooperate so that only those display points corresponding to identified information items are displayed.

Claim 14 (Canceled).

Claim 15 (Previously Presented): An apparatus as claimed in Claim 1, wherein the display processor is operable to generate data representative of the number of information items within the other cluster, the number of information items being associated with the indication of the relative direction in the n-dimensional space of the other cluster with respect to the first cluster.

Claim 16 (Canceled).

Claim 17 (Previously Presented): An apparatus as claimed in Claim 1, further comprising

a user control for selecting information items or clusters of information items within the n-dimensional space using a user controlled pointer, wherein the number of information items are displayed with respect to the indication of relative direction, in response to the pointer being positioned over the indication.

Claim 18 (Original): An apparatus as claimed in Claim 12, wherein the number of dimensions n is two.

Claim 19 (Currently Amended): A video acquisition and processing apparatus comprising:

an information retrieval apparatus having a mapping processor operable to receive data representative of a map of information items from a set of information items identified in a search using a self organizing map, the map of information items providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array, and to process the map data to form a hierarchical clustering of information items providing a first clustering level of information items and at least one other clustering level of information items for clusters of information items within the first level clusters; and

a display processor operable in combination with a graphical user interface to display a representation of at least some of the positions of the array which correspond to identified information items as an n-dimensional display of display points within a display area of a graphical display, the display area corresponding to at least a portion of the array,

wherein, when viewing a first cluster in one of the hierarchical levels within the display area of the graphical display, the display processor is operable to generate data which is displayed as a direction indicating symbol on the graphical user interface providing a user with a relative direction within the n-dimensional display of the location of a second cluster within a same hierarchical level of the n-dimensional display as the first cluster, the second cluster being located outside the display area, and the direction indicating symbol is configured to navigate to the second cluster within the n-dimensional display, and the graphical user interface is operable to display the direction indicating symbol indicating the relative direction of the second cluster within the display area of the graphical display with respect to a position of the first cluster in the display area, and the data representing the number of information items within the cluster is displayable with respect to the direction indicating symbol, the information items including video data with the textual information.

Claim 20 (Previously Presented): The video acquisition and processing apparatus as claimed in Claim 19, further comprising

a repository containing the information items, and  
a data communications network for connecting the repository with the information retrieval apparatus.

Claim 21 (Previously Presented): The video acquisition and processing apparatus as claimed in Claim 19, wherein the information items include a representative key stamp providing a representative image from the information item.

Claim 22 (Previously Presented): The video acquisition and processing apparatus as Claim 21, wherein the characterizing information feature associated with each first level cluster and the other characterizing information feature associated with each cluster within the other clustering level of information items are formed from a most common characterizing information feature present in the information items associated with each cluster and the common characterizing information feature associated with a cluster includes a representative key stamp which is common to the cluster.

Claim 23 (Currently Amended): A method of retrieving and displaying information comprising:

receiving data representative of a map of information items from a set of information items identified in a search using a self organizing map, the map of information items providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array;

processing the map data to form a hierarchical clustering of information items providing a first clustering level of information items and at least one other clustering level of information items for clusters of information items within the first level clusters; and

displaying a representation of at least some of the positions of the array which correspond to identified information items as n-dimensional display array of display points within a display area of a graphical display device, the display area corresponding to at least a portion of the array, wherein the displaying comprises, when viewing a first cluster in one of the hierarchical levels within the display area of the graphical display,

generating data, which when displayed on the graphical user interface as a direction indicating symbol, provides a user with a relative direction within the n-dimensional display of the location of a second cluster within the same hierarchical level of the n-dimensional display as the first cluster, the second cluster being located outside the display area, and the direction indicating symbol is configured to navigate to the second cluster within the n-dimensional display, and

displaying the direction indicating symbol indicating the relative direction of the other cluster within the display area of the graphical display with respect to a position of the first cluster in the display area and the data representing the number of information items within the cluster is displayable with respect to the direction indicating symbol.

Claim 24 (Previously Presented): The method as claimed in Claim 23, wherein processing the map data includes:

providing the first clustering level of information items with a characterizing information feature associated with each of the first level clusters of information items and providing a characterizing information feature for the clusters of information items within the first level clusters at the other hierarchical level.

Claim 25 (Previously Presented): The method as claimed in Claim 24, wherein the information items include a plurality of characterizing information features, the characterizing information features of each information item being used to form a feature vector for each information item, the feature vector being used to map the information item onto a position within the array.

Claim 26 (Previously Presented): The method as claimed in Claim 23, further comprising

displaying a representation of at least some of the positions of the array as an n-dimensional display array of display points within a display area on a graphical display.

Claim 27 (Previously Presented): The method as claimed in Claim 26, wherein the display area includes at least two areas, one area providing an n-dimensional representation of the first hierarchical level of clusters and the other area providing an n-dimensional representation of the other hierarchical level of clusters.

Claim 28 (Previously Presented): The method as claimed in Claim 27, wherein the number of dimensions n is two.

Claims 29-32 (Canceled).

Claim 33 (Currently Amended): A computer readable medium including computer program instructions which cause a computer to execute a method of retrieving and displaying information, comprising:

receiving data representative of a map of information items from a set of information items identified in a search using a self organizing map, the map of information items providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array; and

processing the map data to form a hierarchical clustering of information items providing a first clustering level of information items and at least one other clustering level of information items for clusters of information items within the first level clusters; and

displaying a representation of at least some of the positions of the array which correspond to identified information items as n-dimensional display array of display points within a display area of a graphical display the display area corresponding to at least a portion of the array, wherein the displaying comprises, when viewing a first cluster in one of the hierarchical levels which is present in a view of the display points within the display area of the graphical display,

generating data, which when displayed on the graphical user interface as a direction indicating symbol, provides a user with a relative direction within the n-dimensional display of the location of a second cluster within the same hierarchical level of the n-dimensional display as the first cluster, the second cluster being located outside the display area, and the direction indicating symbol is configured to navigate to the second cluster within the n-dimensional display, and

displaying the direction indicating symbol indicating of the relative direction of the other cluster within the display area of the graphical display with respect to a position of the first cluster in the display area and the data representing the number of information items within the cluster is displayable with respect to the direction indicating symbol.

Claim 34 (Previously Presented): The apparatus of claim 1, wherein the display processor is further configured to generate the data which is displayed on the graphical user interface as a keyword associated with the corresponding second cluster.

Claim 35 (Previously Presented): The apparatus of claim 19, wherein the display processor is further configured to generate the data which is displayed on the graphical user interface as a keyword associated with the corresponding second cluster.

Claim 36 (Previously Presented): The method of claim 23, further comprising: displaying, with the direction indicating symbol, a keyword associated with the corresponding second cluster.

Claim 37 (Previously Presented): The medium of claim 33 further including computer program instructions to execute the method further comprising: displaying, with the direction indicating symbol, a keyword associated with the corresponding second cluster.

Claim 38 (Previously Presented): The apparatus of claim 1, wherein all of the display points in the display area of the graphical display are included in the first cluster.

Claim 39 (Previously Presented): The apparatus of claim 19, wherein all of the display points in the display area of the graphical display are included in the first cluster.

Claim 40 (Previously Presented): The method of claim 23, wherein all of the display points displayed in the display area of the graphical display are included in the first cluster.

Claim 41 (Previously Presented): The medium of claim 33 further including computer program instructions to execute the method, wherein all of the display points displayed in the display area of the graphical display are included in the first cluster.

Claim 42 (Previously Presented): An information retrieval apparatus comprising:  
a mapping processor configured to receive data representative of a map of information items from a set of information items identified in a search using a self organizing map, the map of information items providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array, and to process the map data to form a plurality of hierarchical clusters of information items including at least a first hierarchical cluster of information items and a plurality of second hierarchical clusters of information items, each of the second hierarchical clusters of information items being included within the first hierarchical cluster of information items; and

a display processor configured to display, within a graphical user interface, a first display area including each of the second hierarchical clusters arranged based on the positions in the array of the second hierarchical clusters, and a second display area displayed within the graphical user interface including information items associated only with one of the second hierarchical clusters and direction indicating symbols for each of the other second hierarchical clusters, each of the direction indicating symbols indicating a relative array direction in the first display area from the one of the second hierarchical clusters to a corresponding one of the other second hierarchical clusters.

Claim 43 (Previously Presented): A video acquisition and processing apparatus comprising:

an information retrieval apparatus including a mapping processor and a display processor, wherein

the mapping processor is configured to receive data representative of a map of information items from a set of information items identified in a search using a self organizing map, the map of information items providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array, and to process the map data to form a plurality of hierarchical clusters of information items including at least a first hierarchical cluster of information items and a plurality of second hierarchical clusters of information items, each of the second hierarchical clusters of information items being included within the first hierarchical cluster of information items, and

the display processor is configured to display, within a graphical user interface, a first display area including each of the second hierarchical clusters arranged based on the positions in the array of the second hierarchical clusters, and a second display area displayed within the graphical user interface including information items associated only with one of the second hierarchical clusters and direction indicating symbols for each of the other second hierarchical clusters, each of the direction indicating symbols indicating a relative array direction in the first display area from the one of the second hierarchical clusters to a corresponding one of the other second hierarchical clusters.

Claim 44 (Previously Presented): A method of retrieving and displaying information comprising:

receiving data representative of a map of information items from a set of information items identified in a search using a self organizing map, the map of information items providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array;

processing the map data to form a plurality of hierarchical clusters of information items including at least a first hierarchical cluster of information items and a plurality of second hierarchical clusters of information items, each of the second hierarchical clusters of information items being included within the first hierarchical cluster of information items;

displaying, within a graphical user interface of a display device, a first display area including each of the second hierarchical clusters arranged based on the positions in the array of the second hierarchical clusters; and

displaying, within the graphical user interface, a second display area including information items associated only with one of the second hierarchical clusters and direction indicating symbols for each of the other second hierarchical clusters, each of the direction indicating symbols indicating a relative array direction in the first display area from the one of the second hierarchical clusters to a corresponding one of the other second hierarchical clusters.